

Core Focus

- Number: Writing four-digit numerals and number names
- Number: Locating three- and four-digit numbers on a number line
- Multiplication: Introducing the multiplication symbol and fives and tens facts

Number

- When base-10 place value is understood for numbers in the hundreds, students know just about everything necessary to work with three- and four-digit numbers.
- In this module, students extend their understanding of one-, two-, and three-digit numbers to four-digit numbers using tools like **place-value charts**.

I.3 Number: Representing four-digit numbers

Step In What do you know about this block?

If you regrouped this block as hundreds blocks, how many of them would you get?

How many tens blocks would you get? How many ones blocks would you get?

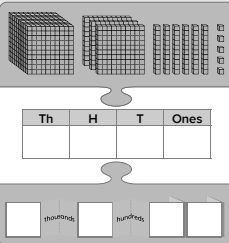
Are there more than or fewer than 1,000 books in your library?

Are there more than or fewer than 1,000 pages in a big dictionary?

Look at this picture of blocks.
How would you describe the number in each place?

Write numbers in the place-value chart to match the blocks.

Show how you would record the same number on the expander.



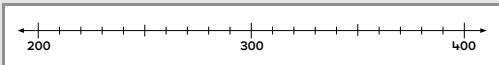
Th	H	T	Ones

In this lesson, students use base-10 blocks and numeral expanders to write four-digit numbers.

- Essential base-10 concepts are practiced by locating numbers on a number line and working with place value using mathematical language including *thousands*, *hundreds*, *tens*, and *ones*.

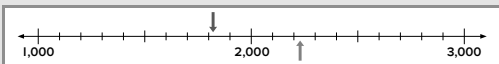
I.6 Number: Locating four-digit numbers on a number line

Step In What do the marks on this number line show?



Where is 340 on the number line? Where is 295? How do you know?

What do the marks on this number line show?



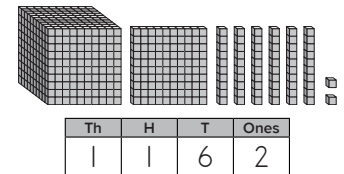
In this lesson, students locate four-digit numbers on a number line.

Ideas for Home

- Read house numbers, video game scores, or highway signs to practice saying three- and four-digit numbers.
- Reinforce place-value language by asking, “How many thousands, hundreds, tens, and ones?”

Glossary

- A **place-value chart** is used to show the number of thousands, hundreds, tens, and ones, in four-digit numbers.

**Helpful videos**

View these short one-minute videos to see these ideas in action.

www.bit.ly/OI_33

www.bit.ly/OI_3

www.bit.ly/OI_24

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Module I

Multiplication

- Multiplication is a significant focus in Grade 3. In Grade 2, multiplication was introduced by arranging objects in an array. Now students learn to visualize a collection of equal-sized groups.
- Though multiplication concepts were presented in Grade 2, the actual symbol for multiplication is introduced in this module, as well as formal **multiplication equations**.

1.7 Multiplication: Introducing the symbol

Step In

Use cubes to help figure out the answer.
Write an addition equation to match your cubes.

How does your equation relate to the story problem?
The symbol for multiplication can be used when you are adding equal groups.
Write a multiplication equation to match your cubes.

The symbol for multiplication is \times .
The result of multiplication is called the **product**.

In this lesson, students are introduced to the symbol \times for multiplication equations.

- Understanding the **commutative property** for multiplication can make some calculations easier to do, especially when students visualize multiplication as arrays.

1.11 Multiplication: Introducing the fives facts

Step In Look at this array and the equations.

How would you calculate the products?

$4 \times 5 = \underline{\quad}$
 $5 \times 4 = \underline{\quad}$

How is this array different from the one above?
How could you calculate the products in these equations?

$4 \times 10 = \underline{\quad}$
 $10 \times 4 = \underline{\quad}$

I halved the product in the tens fact. 10 fours is 40 so 5 fours is half of that.

I counted in steps of 5.

This array shows 6×10 . Circle half of the array to calculate 6×5 . Then complete the facts.

6 rows of 10 is
so
6 rows of 5 is

In this lesson, an array is used to show how a known tens fact can help figure out a fives fact.

Ideas for Home

- Look for groups of five and ten in your home, at the store, and around your neighborhood.
- Ask your child to solve real-world problems, such as, "If there are 4 people in our family, and each person eats 5 apples a week, then how many apples do we need to buy at the grocery store?" Remember to ask them to explain how they know.

Glossary

- This is a **multiplication equation**. Any equation must include the equals symbol (=).

$$\begin{array}{ccccccc}
 4 & \times & 5 & = & 20 \\
 \uparrow & & \uparrow & & \swarrow \\
 \text{number of} & & \text{number in each} & & \text{product} \\
 \text{groups/rows} & & \text{group/row} & &
 \end{array}$$

- The **commutative property** describes how the order of the numbers being multiplied can be changed without affecting the product.

$$4 \times 5 = 20 = 5 \times 4$$